

Addiction Therapy-2014

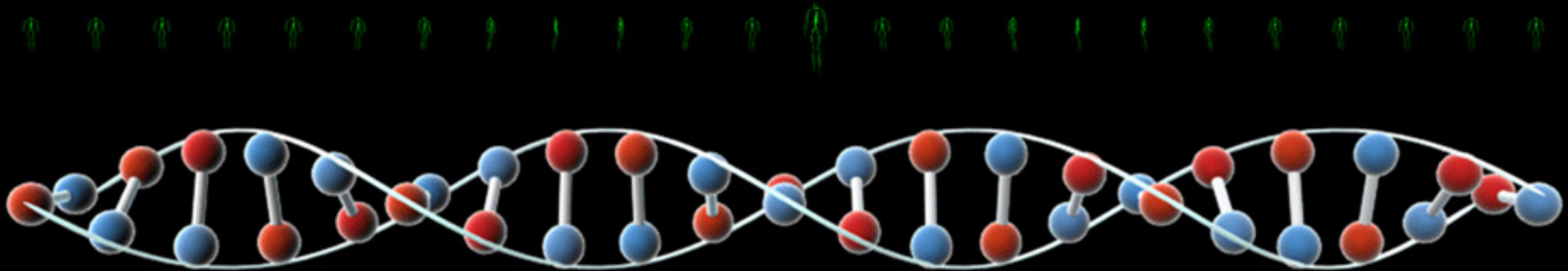
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Dong Zheng

The Protective Effect of Astaxanthin on Fetal Alcohol Spectrum Disorder in Mice



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Background

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Mechanisms of Oxidative Stress Related FASD and Prevention of AST

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Intervention of AST on the TLRs system

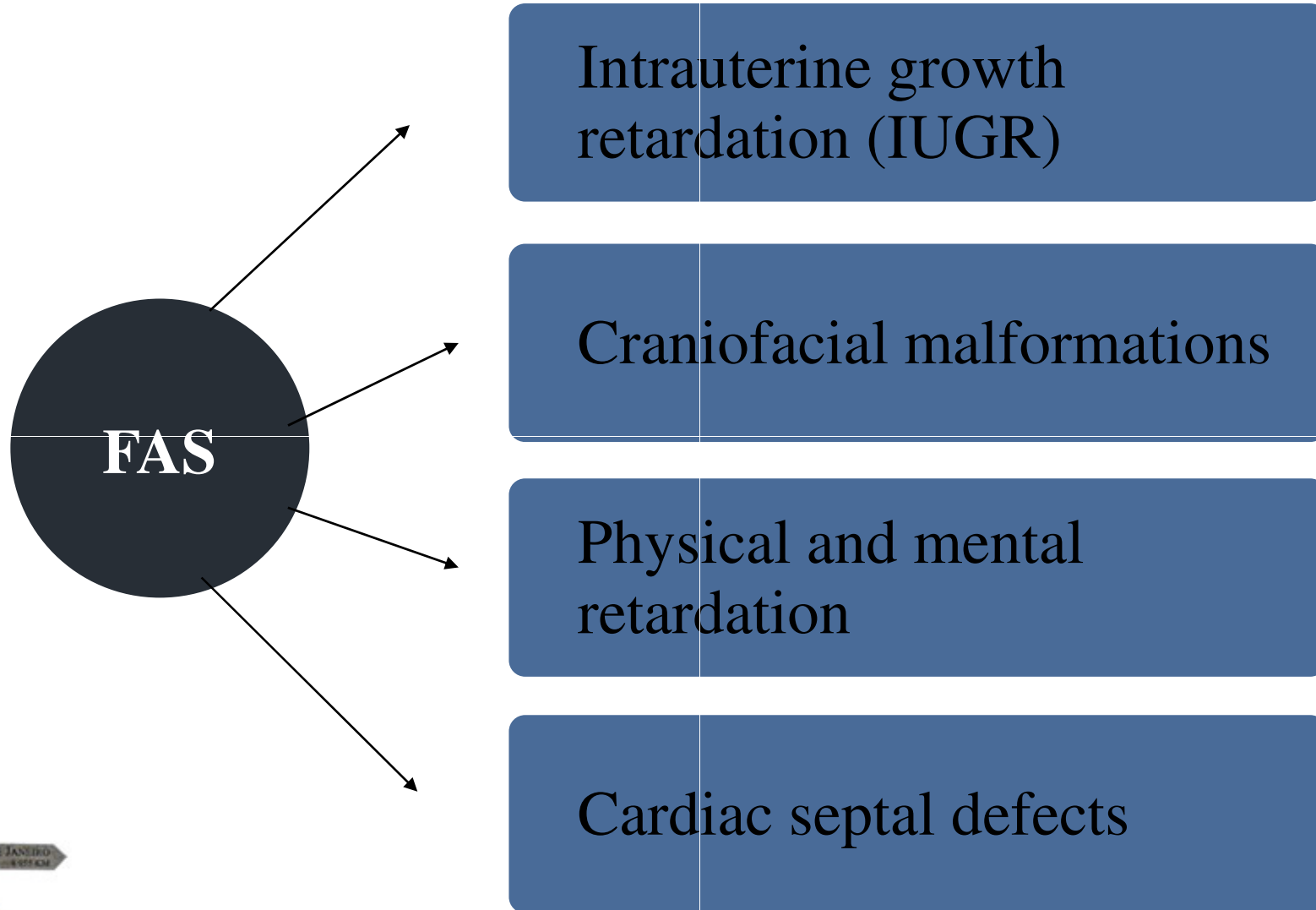
4

Conclusions



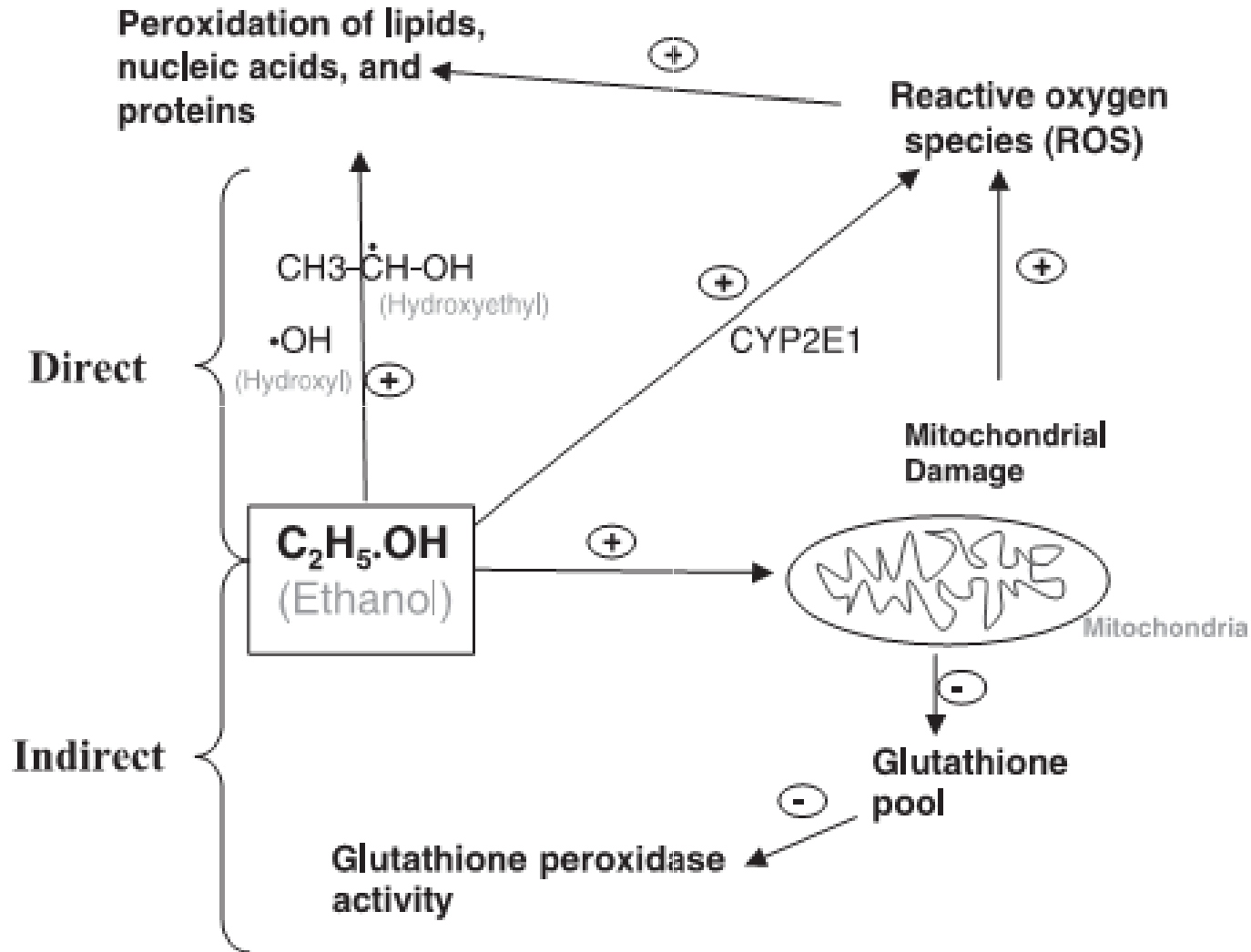
Background

1973 Jones and Smith

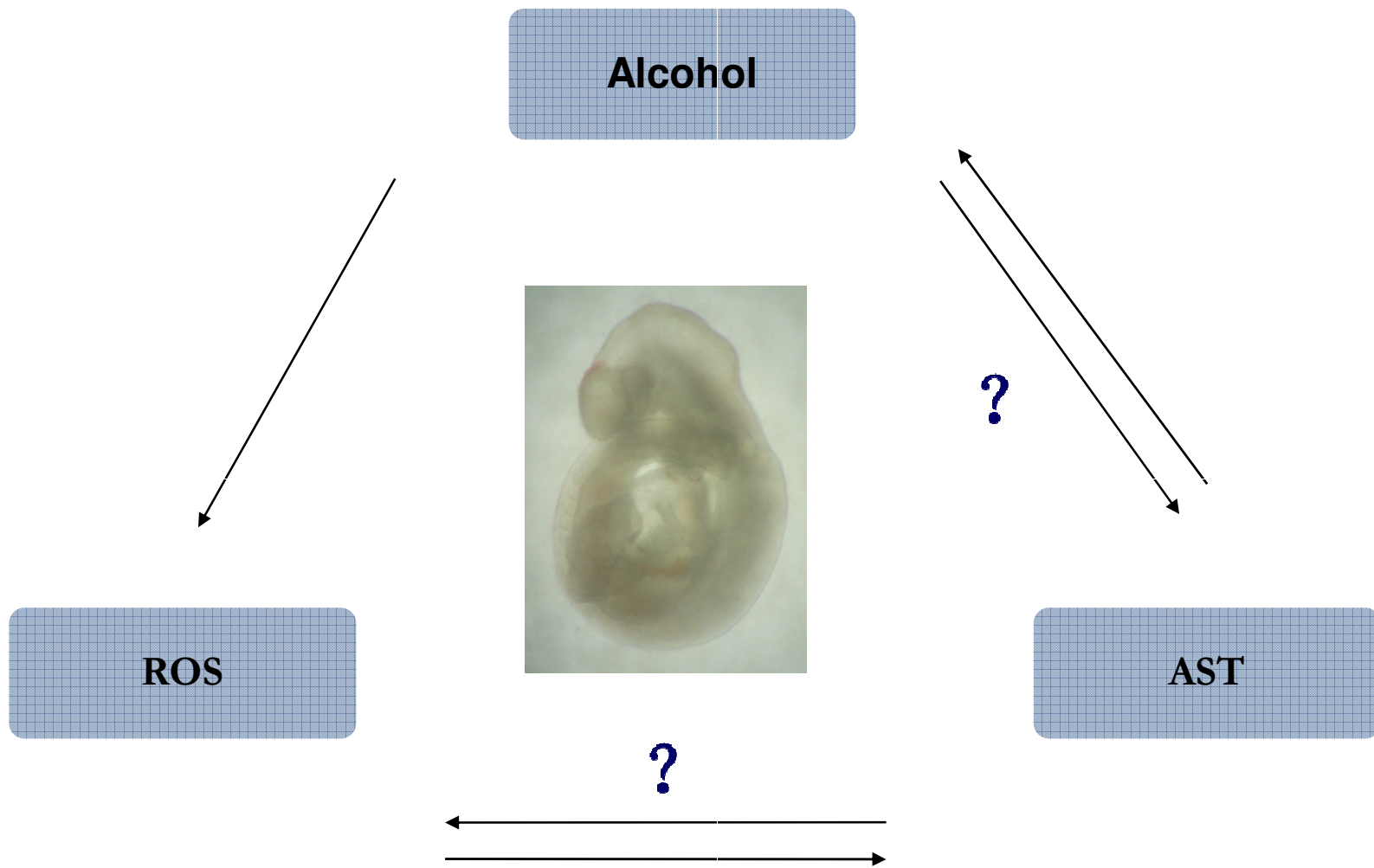


Background

FASD -- Foetal Alcohol Spectrum Disorders

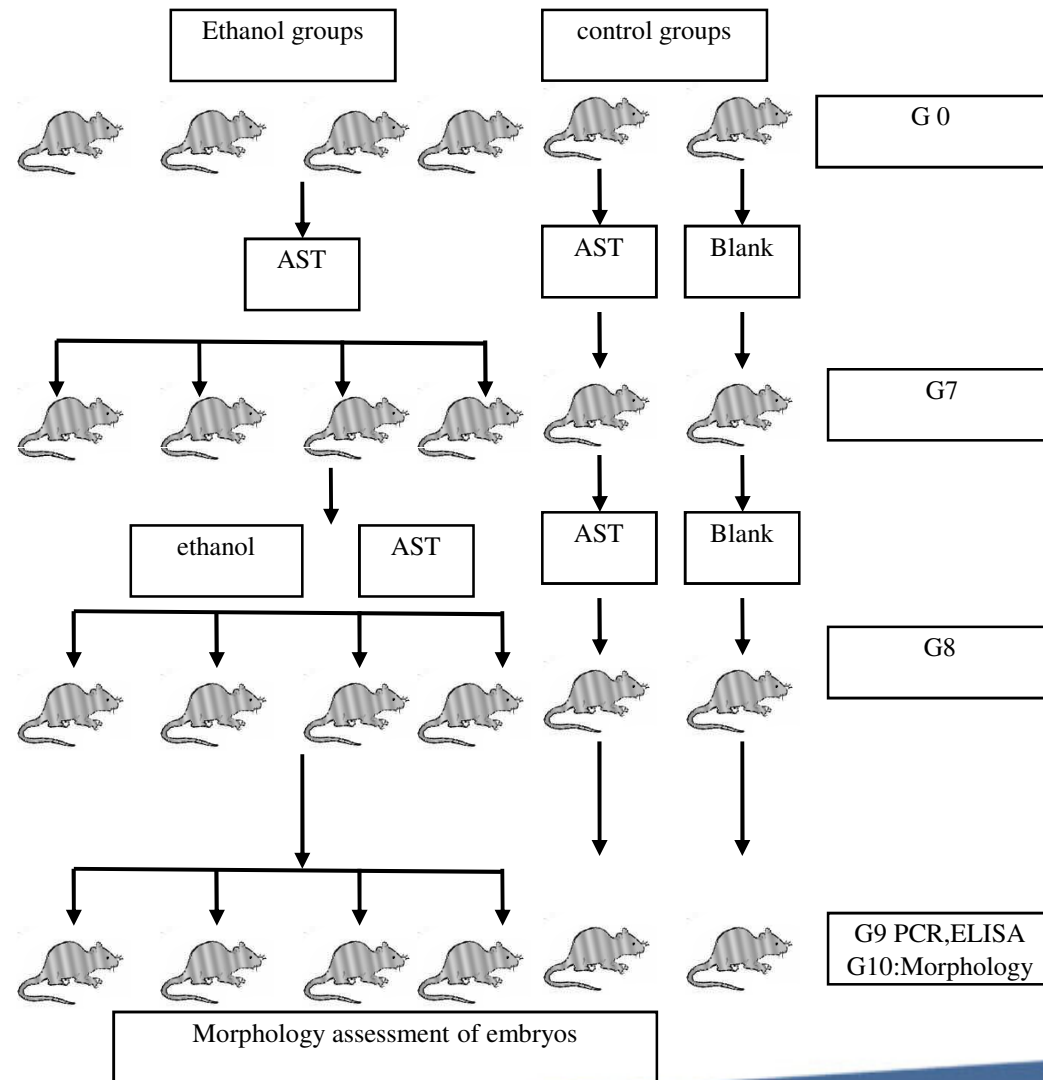


Mechanisms of Oxidative Stress Related FASD and Prevention of AST



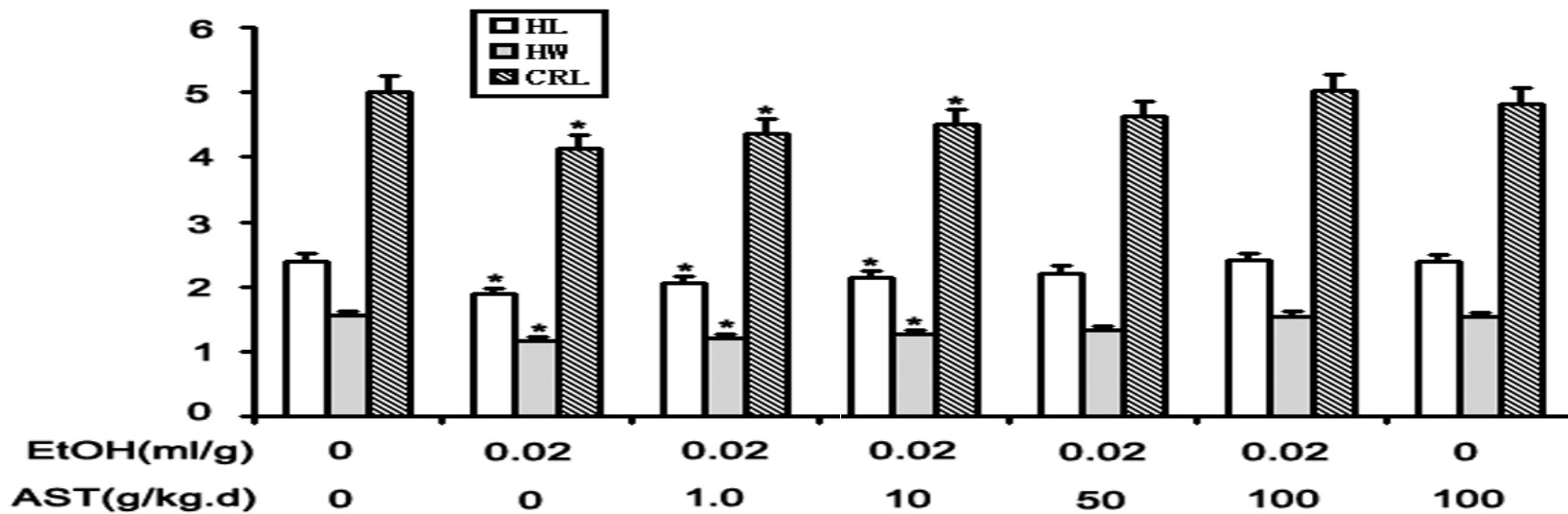
Animals and experimental treatment

- Wild type female mice
- gestational day
- G0: gestational day
- G7: AST
- G8: ethanol and AST
- G9: for RT-PCR, Western-blot, ELISA;
- G10: for Morphology study

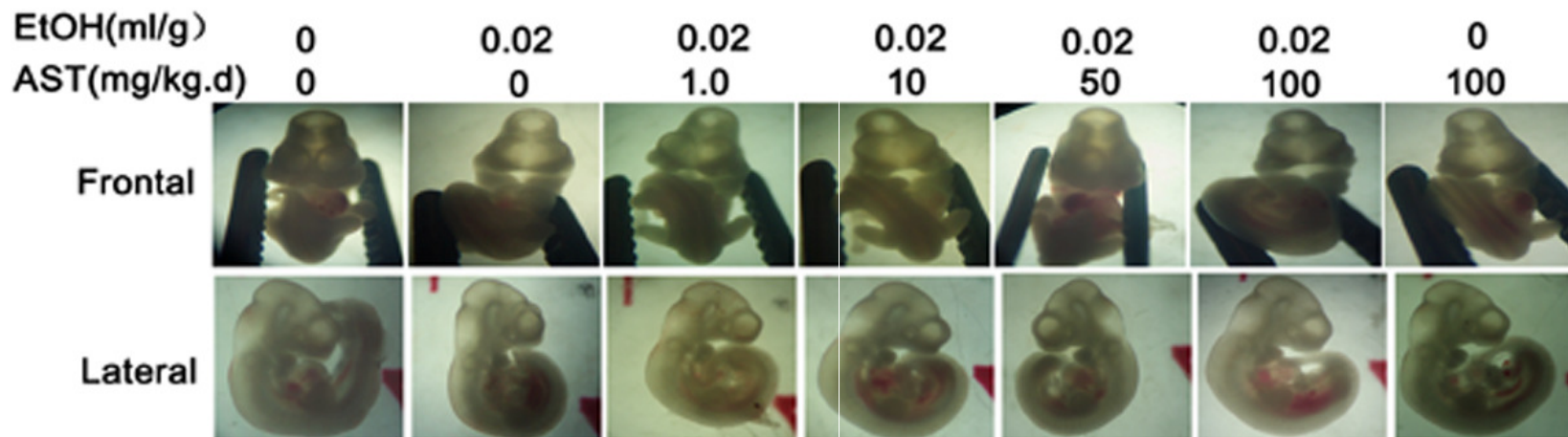


AST prevented ethanol-induced developmental retardation in mouse embryos

A

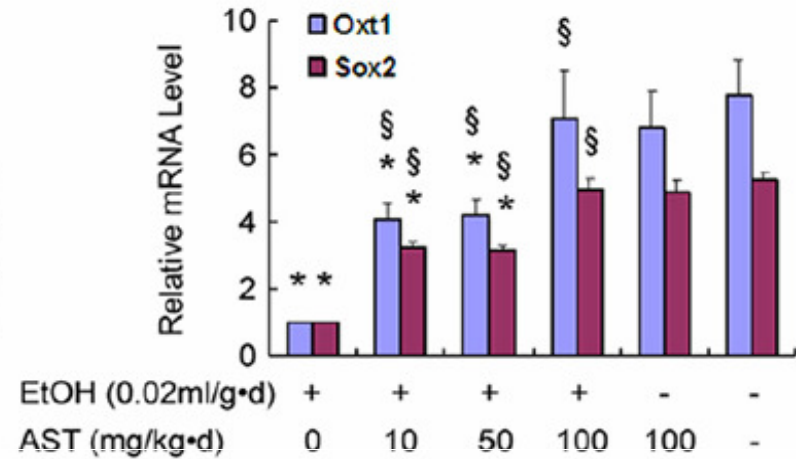
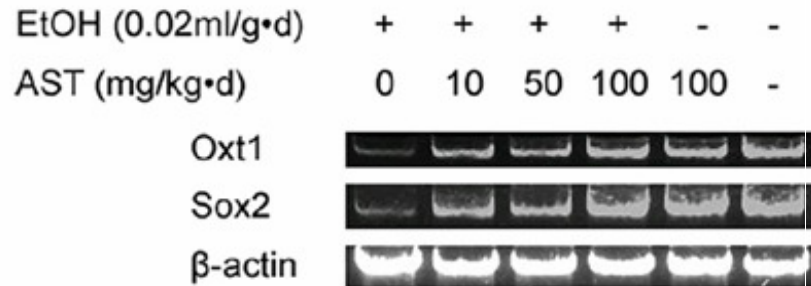


B

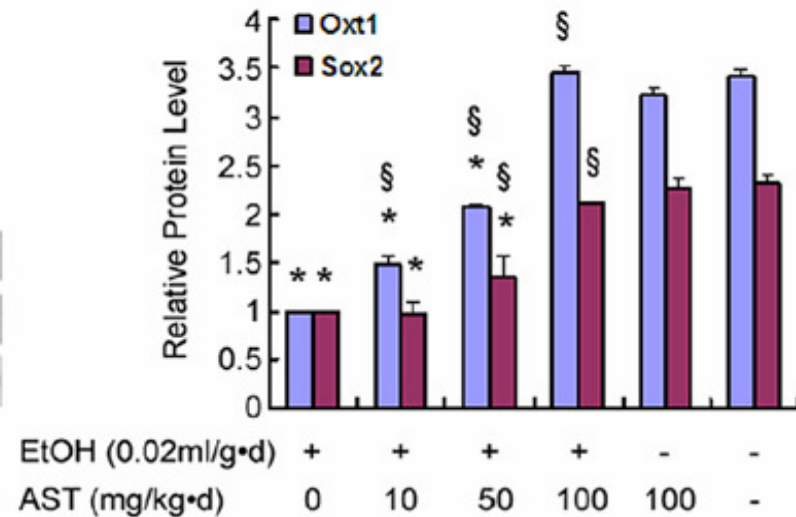
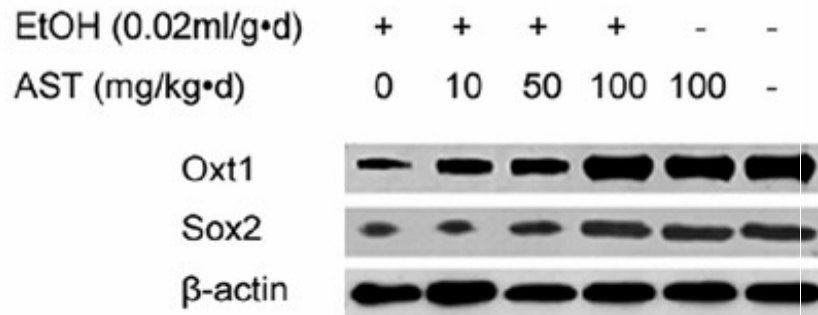


Down-regulation of neural marker genes

A

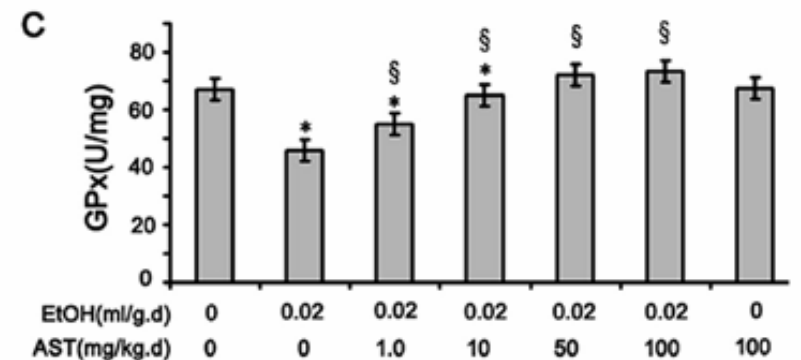
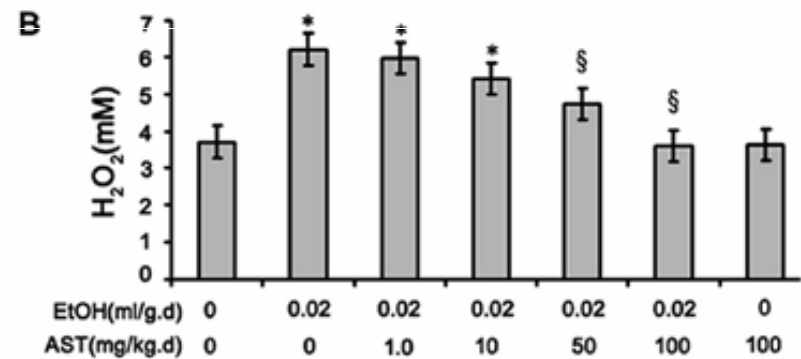
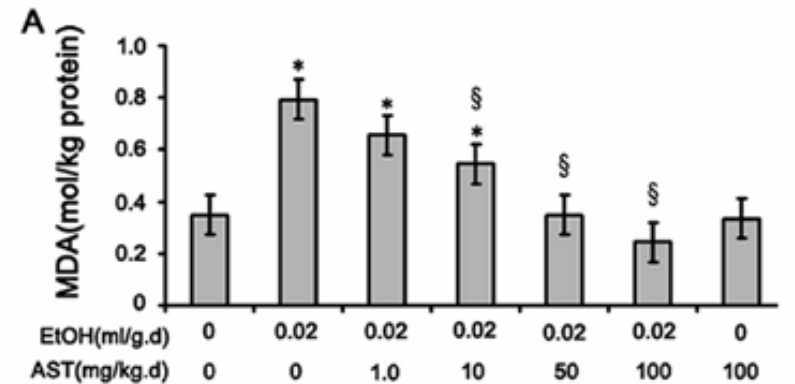


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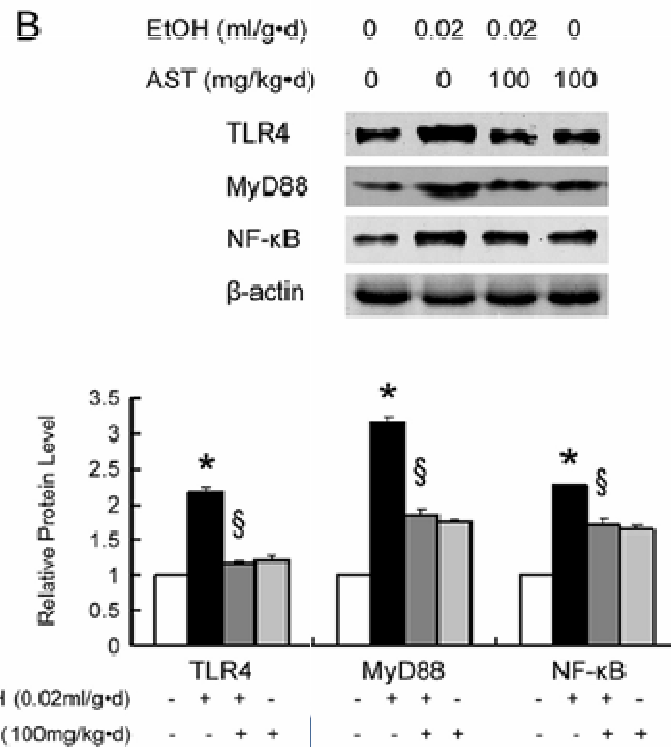
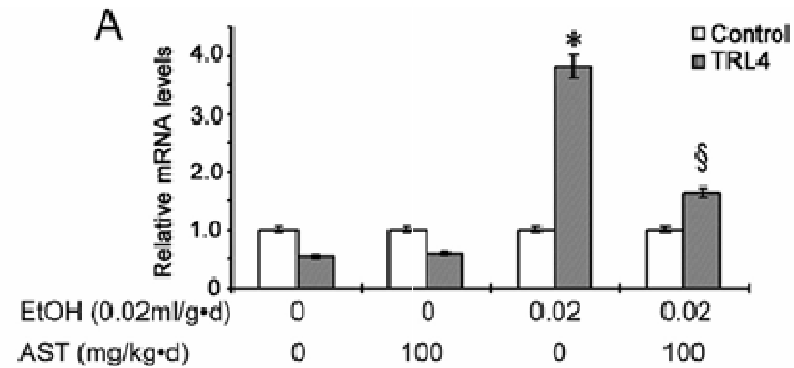


Mechanisms of oxidative stress related FASD and prevention of AST

- A. malondialdehyde(MDA)
- B. hydrogen peroxide(H₂O₂)
- C. glutathione peroxidase peroxidase(GPx)

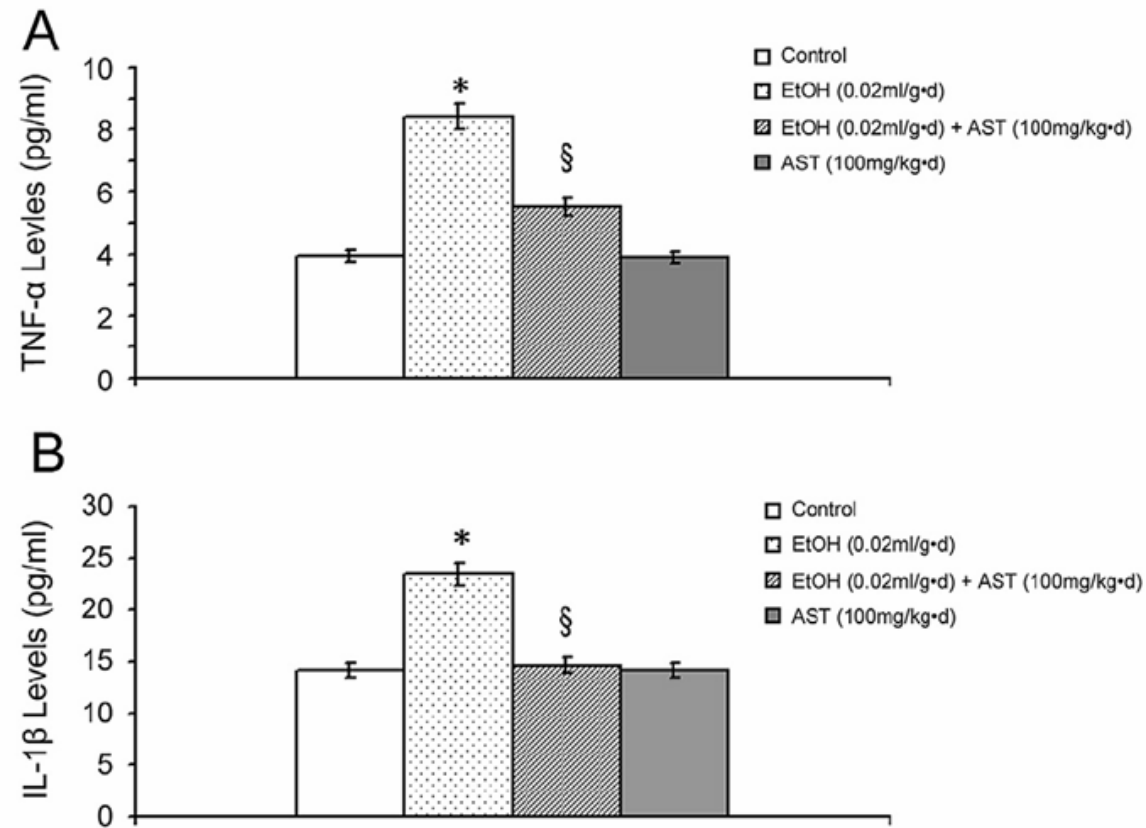


Intervention of AST on the TLRs system



Intervention of AST on the TLRs system

- A. AST inhibited ethanol-induced production of TNF- α
- B. AST inhibited ethanol-induced production of IL-1 β in embryos



Discussion

- AST pretreatment protected embryos from maternal ethanol-induced neurodevelopmental retardation and down-regulation of neural marker genes.
- Inflammation played a role in mechanisms of FASD.
- TLR4 is distinct expression in embryos and related to inflammation



Conclusions

- **Our results demonstrated a protective effect of astaxanthin on fetal alcohol spectrum disorder**
- **Oxidative stress and toll-like receptor signaling associated inflammatory reaction were involved in this process.**



Acknowledgements







Thank you !



Meet the eminent gathering once again at

Addiction Therapy-2015

Florida, USA

August 3 - 5, 2015

Addiction Therapy – 2015 Website:

addictiontherapy.conferenceseries.com